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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/641,705	08/15/2003	Can Erkey	UCT-0037	9966
23413	7590	12/17/2004	EXAMINER	
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			WITHERSPOON, SIKARL A	
			ART UNIT	PAPER NUMBER
			1621	

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/641,705	Applicant(s) ERKEY ET AL.	
	Examiner Sikarl A. Witherspoon	Art Unit 1621	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 September 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 35 is/are allowed.
- 6) ☒ Claim(s) 2-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

The examiner has considered applicants' amendment filed September 10, 2004 and the remarks therein. Applicants have amended the claims by rewriting claims 17, 18 and 27 in independent form. The dependent claims now ultimately depend on claim 27, which claims a catalytic process wherein a product is formed in a microemulsion comprising water, a densified fluid, and a surfactant, wherein the microemulsion has a pH of about 2 to 8.

Niemeyer et al (Journal of Physical Chemistry, B, 1998) teach on page 1475, first paragraph, that, "...there have not been any quantitative determinations of the actual pH within PFPE (polyfluoropolyether) water pools..."; such water pools are microemulsions formed in supercritical carbon dioxide. In light of the teaching of Niemeyer et al, the examiner finds that the pH of the microemulsion formed by the instant catalytic process is unobvious in view of the closest prior art of record. Therefore, in amending the instant claims to recite a pH of about 2 to about 8 in the microemulsion formed by the instant process, applicants have obviated the rejection of record; however, the examiner is now making the following *new* rejection.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2-34 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a catalytic process, wherein an olefin is hydroformylated by the reaction of the olefin with hydrogen and carbon monoxide, and an organometallic catalyst, in a microemulsion further comprising water, a densified fluid, and a surfactant, to form a hydroformylation product, does not reasonably provide enablement for conducting *any* catalytic process that forms a product in a microemulsion, as suggested by the breadth of the instant claims. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. Accordingly, the examiner purports that it would constitute undue experimentation to determine what types of catalytic processes, as well as what types of reactants can be effectively employed in order to conduct a catalytic process as per the parameters of the instant claims.

There are eight (8) factors considered by the Federal Circuit in the determination of undue experimentation, *In re Wands*, 8 USPQ2d 1400 (1988). These factors are: the nature of the invention, the breadth of the claims, the state of the prior art, the predictability or unpredictability of the art, the amount of direction or guidance presented, the presence or absence of working examples, the relative skill of those in the art, and the quantity of experimentation necessary. The examiner will discuss these factors as they apply to the instant invention.

*Nature of the invention.* The present invention is drawn to a catalytic process, wherein a reactant is reacted with an organometallic catalyst to form a product in a

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microemulsion comprising the reactant and the organometallic catalyst, and further comprising water, a densified fluid, and a surfactant.

*Breadth of claims.* Independent claims 17, 18, 27,33, and 34 are extremely broad in that they attempt to encompass any and all catalytic processes that can form a product in a microemulsion as described above; however, since no structure or name is provided for the reactants (or product) of said catalytic process, a catalytic process wherein a product is formed in a microemulsion can be applied to a great many catalytic processes.

*State of the prior art.* It is known in the prior art that catalytic processes, such as hydroformylation reactions, can be conducted such that the product is formed in a microemulsion system, and that by adopting a microemulsion system for catalytic processes, extremely mild conditions can be employed.

*Predictability of the art.* Catalysts, and catalytic processes are unpredictable. Some catalysts and catalytic processes are substrate specific, some are reaction specific, and others are both reaction and substrate specific. Reaction conditions that are known to be effective for producing desirable results in one type of catalytic process may not be effective in other types of processes.

*Amount of guidance present.* The instant disclosure provides guidance for a catalytic process that comprises the reaction of an olefin, hydrogen, carbon monoxide, and an organometallic catalyst in a microemulsion further comprising water, a densified fluid, and a surfactant, i.e., a hydroformylation process, to produce a product in a microemulsion. However, the specification does not provide any guidance as it pertains

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to any other type of catalytic process, such as, hydrogenation, halogenation, carboxylation, hydrocyanation, isomerization, esterification, etc., as recited in the instant claims (claim 23 specifically).

*Presence of working examples.* The specification provides several working examples; however, all of the examples are geared to catalytic hydroformylation reactions.

*Relative skill of those in the art.* A person of ordinary skill in the art would recognize the types of catalytic processes that can be conducted under such conditions so as to produce a product in a microemulsion system. However, it would confound the person of ordinary skill as to what types of catalytic processes would function in the manner described in the instant claim(s); for example, what type of process, and what reactants, and under what conditions, can a catalytic process be conducted in order to effectively produce a product in a microemulsion, such as that which is described in the instant claims, i.e., comprising water, a densified fluid, and a surfactant.

*Quantity of experimentation necessary.* The quantity of experimentation required of a person having ordinary skill in the art could potentially be infinite without further guidance. As stated above, catalysts and catalytic processes are unpredictable, and their effectiveness may depend on the reaction substrate(s), reaction conditions, i.e., the type of reaction itself, or a combination of both. Without further guidance, a person of ordinary skill would have to experiment with many different types of catalytic processes, experimenting with different types of compounds as reactant, possibly employing many different organometallic catalysts, to determine which catalytic

processes, and which reactants can produce a product in a microemulsion, as per the instant invention. All these elements taken into consideration make the experimentation unduly burdensome.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The instant claims are drawn to a catalytic process wherein a reactant is reacted with an organometallic compound to form a product in a microemulsion. However, the claims do not recite what type of catalytic process is being conducted, nor do the claims recite a name or structure of the possible reactants, or a name or structure of a product that is being made; as such, the claims are found indefinite.

#### ***Allowable Subject Matter***

The following is a statement of reasons for the indication of allowable subject matter: claim 35 is allowable for the reason already set forth in the previous Office Action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikarl A. Witherspoon whose telephone number is 571-272-0649. The examiner can normally be reached on M-F 8:30-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Sikarl A. Witherspoon* 12/13/04  
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